Amendments to the Claims:

This listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

1-25. (Cancelled)

26. (Original) A platform for use in sample analysis, said platform having one or more sensing areas or regions, each for receiving a capture element or elements which when the platform is irradiated with coherent light can interact to provide an indication of an affinity reaction, wherein each capture element includes two or more types of capture molecule.

27-29. (Cancelled)

30. (New) The platform of claim 26, comprising an optically transparent substrate having a refractive index (n_1), a thin, optically transparent layer, formed on one surface of the substrate, said layer having a refractive index (n_2) which is greater than (n_1), said platform incorporating therein one or multiple corrugated structures comprising periodic grooves which define the one or multiple sensing areas or regions, said grooves being so profiled, dimensioned and oriented that coherent light incident on said platform is diffracted into individual beams or diffraction orders which interfere resulting in reduction of the transmitted beam and an anormal high reflection of the incident light thereby generating an enhanced evanescent field at a surface of the one or more sensing areas.

31. (New) The platform of claim 30, wherein the enhanced evanescent field interacts with luminescent material on or in the vicinity of one of the sensing areas or regions so as to produce a detectable luminescent signal.

32. (New) The platform of claim 26, comprising an optically transparent substrate having a refractive index (n_1), a thin, optically transparent layer, formed on one surface of the substrate, said layer having a refractive index (n_2) which is greater than (n_1), said platform

incorporating therein one or multiple corrugated structures comprising periodic grooves which define the one or multiple sensing areas or regions, said grooves being so profiled, dimensioned and oriented that coherent and linearly polarised light incident on said platform is diffracted into individual beams or diffraction orders which interfere resulting in a substantially total extinction of the transmitted beam and an anormal high reflection of the incident light thereby generating an enhanced evanescent field at a surface of the one or more sensing areas.

33. (New) The platform of claim 32, wherein the enhanced evanescent field interacts with luminescent material on or in the vicinity of one of the sensing areas or regions so as to produce a detectable luminescent signal.

34. (New) The platform of claims 31 or 33, wherein the luminescent material comprises a fluorophore, and wherein the luminescent signal comprises a fluorescent signal.

35. (New) The platform of claims 30 or 32, wherein the center-to-center spacing between each of the one or more sensing areas or regions is between about 1 μm and about 1 mm.

36. (New) The platform of claims 30 or 32, wherein said light incident on the platform is incident on the side of the substrate having the optically transparent layer formed thereon.

37. (New) The platform of claims 30 or 32, wherein said light incident on the platform is incident on the side of the substrate that does not have the optically transparent layer formed thereon.

38. (New) The platform of claim 32, wherein the polarized light has a polarization that is substantially aligned with the orientation of the grooves in at least one of said sensing areas or regions.

39. (New) The platform of claim 32, wherein the polarized light has a polarization that is substantially perpendicular to the orientation of the grooves in at least one of said sensing areas or regions.

40. (New) The platform of claim 30 or 32, wherein the grooves of at least one of said corrugated structures are profiled, dimensioned and oriented such that the radiation loss coefficient of the incident light within the at least one corrugated structure is on the order of 2000/cm or greater.

41. (New) The platform of claim 30 or 32, wherein the grooves of at least one of said corrugated structures are profiled, dimensioned and oriented such that the propagation distance of the incident light within the at least one corrugated structure is less than about 100 μm.

42. (New) The platform of claim 30 or 32, wherein the grooves of at least one of said corrugated structures are profiled, dimensioned and oriented such that the propagation distance of the incident light within the at least one corrugated structure is less than about 10 μm.

43. (New) The platform of claim 30 or 32, wherein the depth of the grooves is in the range of about 50 nm to the thickness of the optically transparent layer.

44. (New) The platform of claim 30 or 32, wherein

the depth of the grooves is in the range of about 30 nm to the thickness of the optically transparent layer,

the thickness of the optically transparent layer is in the range of 30 to 1000 nm,

the period of the corrugated structure is in the range of 200 to 1000 nm,

the ratio of groove depth to the thickness of the optically transparent layer is in the range of 0.02 to 1, and

the ratio of grove width to the period of the grooves is in the range of 0.2 to 0.8.

45. (New) The platform of claim 32, wherein the polarized light has a linear polarization component that gives rise to TM excitation in at least one of said sensing areas or regions.

46. (New) Apparatus for analyzing samples comprising a platform according to claims 30 or 32, and further including means for generating a light beam and for directing the beam so that it is incident upon the platform on the side of the substrate having the optically transparent layer disposed thereon at an angle which causes evanescent resonance to occur in at least one sensing area of the platform to thereby create an enhanced resonant field in the at least one sensing area of the platform, and means for detecting a characteristic of an affinity reaction occurring on or in the vicinity of, or a characteristic of a material disposed on or in the vicinity of, the at least one sensing area of the platform.

47. (New) Apparatus for analyzing samples comprising a platform according to claims 30 or 32, and further including means for generating a light beam and for directing the beam so that it is incident upon the platform on the side of the substrate that does not have the optically transparent layer disposed thereon at an angle which causes evanescent resonance to occur in at least one sensing area of the platform to thereby create an enhanced resonant field in the at least one sensing area of the platform, and means for detecting a characteristic of an affinity reaction occurring on or in the vicinity of, or a characteristic of a material disposed on or in the vicinity of, the at least one sensing area of the platform.

48. (New) The platform of claim 26, wherein each type of capture molecule includes a molecule selected from the group consisting of a nucleotide, an oligonucleotide, DNA, RNA, PNA, an antibody, an antigen, a protein, an antibiotic, a drug, an enzyme, a ligand, a peptide, a polymer, a molecular probe, a receptor, an indicator and a tissue sample.